

REMARKS

Claims 1-30 are pending.

Claims 1-30 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,606,706 (Li) in view of OSPF Version 2, Request for Comments: 2328 ("the OSPF reference"). Applicant respectfully disagrees with that rejection.

The Li patent discloses a multicast data communications network that is partitioned into multiple, hierarchical security domains (*e.g.*, 100, 200 and 300 of FIG. 1) and sub-domains (*e.g.*, sub-domains 110, 120). (*See* column 3, lines 57-64.) The Office Action itself concedes that the Li patent fails to disclose "a first sequence identifier" and "a second sequence identifier," as recited in claim 1. The Office Action asserts, however, that the OSPF reference discloses utilizing sequence numbers when transmitting messages and that it would have been obvious to modify the Li patent to include sequence numbers.

Applicant submits that the differences between the subject matter of claim 1 and the Li patent are more substantial than merely utilizing sequence numbers when transmitting messages. Claim 1 recites a particular method that involves the use of authentication keys and sequence numbers when sending messages. That particular method is not disclosed or suggested by the Li patent, the OSPF reference or any combination thereof. Therefore, even if the Li patent were modified as the office action suggests (*i.e.*, to include sequence numbers when transmitting messages, as per the OSPF reference), the subject matter of claim 1 would not result.

The particular method recited in claim 1 includes sending a first message (*e.g.*, KEY 2, SEQ+2 in FIG. 4) containing a first sequence identifier (*e.g.*, SEQ+2) and a digest of routing information that has been calculated using a first authentication key (*e.g.*, KEY 2); and subsequently, sending a second message (*e.g.*, KEY 1, SEQ+1) containing a second sequence identifier (*e.g.*, SEQ+1) that is earlier in a sequence than the first sequence identifier (*e.g.*, SEQ+2) and a digest of the routing information that has been calculated using a second authentication key (*e.g.*, KEY 1).

Although the OSPF reference generally discloses the use of sequence numbers with respect to link state advertisements ("LSAs") (*see* §12.1.6), the OSPF reference does not disclose the particular method of using sequence numbers that is recited in claim 1. Indeed, the OSPF reference states that "the larger the sequence number, . . . the more recent the LSA" and that "the LSA's sequence number is incremented each time the router originates a new instance of the LSA." The OSPF reference does not disclose sending a first message and a second, subsequent message, where a sequence number of the first message is later in the sequence than the sequence number of the second, subsequent message, as is recited in claim 1.

Certain advantages of the features recited in claim 1 can be appreciated by referring to FIG. 4 of the present application which shows an exemplary network, in which an authentication key rollover has been successfully implemented in routers 12A and 12B (to KEY 2), but not in router 12C (remains at KEY1). Each of the routers 12A, 12B, 12C is adapted to process received messages only if: 1) the sequence number associated with the received message is greater than the sequence number associated with the most recently received message; and 2) the authentication key used to calculate the digest of the received message is the same key as was used in the most recent, previously-received message. (*See* page 12, lines 5-12.)

As illustrated, router 12A transmits two routing messages -- a first routing message (including a digest calculated with KEY 2 and sequence number SEQ+2) and a second routing message (including a digest calculate with KEY 1 and sequence number SEQ+1). Since the authentication key rollover was not completed in router 12C, router 12C expects KEY 1. Accordingly, when router 12C receives the first message (KEY 2), router 12C does not process that message because it uses an unexpected key. Subsequently, when router 12C receives the second message (KEY 1, SEQ+1), router 12C processes that message because: 1) the sequence number (N+1) is greater than the sequence number (N) of the previously processed message; and 2) the second message uses the expected key (KEY 1).

On the other hand, since the key rollover was successfully implemented in router 12B, router 12B expects KEY 2. Accordingly, when the first message (including KEY 2) reaches the router 12B, router 12B processes that message because the first message uses the expected key

(KEY 2) and because the sequence number of the message ($N + 2$) is greater than the sequence number (N) of the previously processed message. When the second message reaches the router 12B, router 12B does not process that message because the sequence number of the second message ($N + 1$) is less than the sequence number of the most recently received routing message (*i.e.*, $N + 2$ from the first message).

Accordingly, in certain implementations, the method recited in claim 1 can help ensure that every router (*e.g.*, 12B, 12C) in a network efficiently processes messages, despite authentication key rollovers occurring in certain (but not necessarily all) routers in the system.

Claim 1 should be allowable for at least the foregoing reasons.

Claims 2-8 depend from claim 1 and, therefore, should be allowable for at least the same reasons as claim 1.

Independent claims 9, 14, 20, 25, 27 and 29 recite features that are similar to those recited in claim 1. Accordingly, those claims should be allowable for at least the same reasons discussed above with reference to claim 1.

Claims 10-13, 15-19, 21-24, 26, 28 and 30 respectively depend from allowable claims and, therefore, should be allowable for at least the same reasons as the claims from which they depend.

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this

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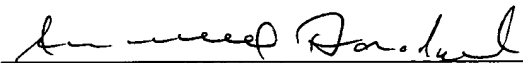
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Assignee: Intel Corporation

paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

No fee is believed to be due. However, please apply any charges or credits to deposit account 06-1050.

Respectfully submitted,

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